1 What is claimed is:

2   1.   A web service system allowing two or more web services to autonomously

3 communicate in a conversation via documents, where the documents used by the two or

4 more web services may require transformation, said system comprising:

5   a plurality of conversation definition language (CDL) description files, wherein

6 each of the respective CDL description files defines document types, transitions and

7 interactions of a conversation; and

8   a conversation controller controlling conversation for at least one web service and

9 having access to the plurality of CDL description files, the conversation controller

10 handling a plurality of inbound and outbound documents, and utilizing a plurality of CDL

11 description files to determine document types for each of the inbound and outbound

12 documents, and to determine transitions and interactions of a conversation, wherein the

13 conversation controller is capable of utilizing a transformational CDL (TCDL)

14 description file, the TCDL being a CDL extended with transformational elements.

15   2.   The web service system as recited in claim 1, wherein the use of a TCDL

16 file results in automatic transformation of a document valid for a first web service into a

17 transformed document valid for a second web service

18   3.   The system as recited in claim 2, wherein a TCDL file is generated by an

19 associated web service.

20   4.   The system as recited in claim 2, further comprising a plurality of

21 transformational conversation definition language (TCDL) description files accessible by

22 the conversation controller, wherein each TCDL file defines document types, transitions,

23 interactions and at least one document transformation of a conversation.

24   5.   The system as recited in claim 2, wherein each CDL file includes

25 transformational elements.

26   6.   The system as recited in claim 2, further comprising at least one additional

27 conversation controller, wherein each conversation controller is used by a corresponding

28 web service.

29   7.   The system as recited in claim 2, further comprising a registry, wherein the

30 registry holds information corresponding to a plurality of CDL and TCDL files and

31 associated web services, the information being retrievable by a conversation controller to

32 determine an appropriate CDL/TCDL file to use for a given web service.

33   8.   A computer readable medium containing a data structure for defining

34 document transformations in a web service conversation between two or more web

1   services, where the data structure is to be parsed by a conversation controller computer

2   program, said data structure comprising:

3   a first section defining document types for a plurality of inbound and outbound

4   documents used in a conversation;

5   a second section defining interactions of a conversation;

6   a third section defining a flow of a conversation; and

7   a fourth section identifying document transformations in a conversation, wherein a

8   document transformation is necessary to transform a document used by a first web service

9   into a document used by a second web service.

10   9.   The computer readable medium as recited by claim 8, wherein the section of the

11   data structure identifying document transformations is a subsection of the section defining

12   interactions.

13   10.   The computer readable medium as recited in claim 8, wherein the section of the

14   data structure identifying document transformations identifies a corresponding stylesheet

15   document, the corresponding document comprising elements defining attributes, fields

16   and computations related to a required transformation.

17   11.   The computer readable medium as recited in claim 10, wherein the identified

18   stylesheet is a virtual single document comprised of a plurality of linked documents.

19   12.   A memory for storing data for access by at least one conversation controller

20   managing a conversation between web services, comprising:

21   a first section stored in memory defining document types for a plurality of

22   inbound and outbound documents in a conversation;

23   a second section stored in memory defining interactions of a conversation;

24   a third section stored in memory defining a flow of a conversation; and

25   a fourth section stored in memory identifying document transformations in a

26   conversation, wherein a document transformation is necessary to transform a document

27   used by a first web service into a document used by a second web service.

28   13.   The memory as recited in claim 12, wherein the section of the data structure

29   identifying document transformations is a subsection of the section defining interactions.

30   14.   The memory as recited in claim 12, wherein the section of the data structure

31   identifying document transformations identifies a corresponding stylesheet document, the

32   corresponding document comprising elements defining attributes, fields and computations

33   related to a required transformation.

1   15.   The memory as recited in claim 14, wherein the corresponding stylesheet

2   document is stored in a second memory accessible by the conversation controller.

3   16.   The memory as recited in claim 14, wherein the identified stylesheet is a virtual

4   single document comprised of a plurality of linked documents.

5   17.   The memory as recited in claim 16, wherein the plurality of linked documents are

6   stored in at least one additional memory accessible by the conversation controller.

7   18.   A method for automatically transforming documents in a conversation between

8   two or more web services, said method comprising steps of:

9   retrieving at least one transformational conversation description language (TCDL)

10   description file for use by a conversation controller;

11   determining, by the conversation controller, whether a document needed in a

12   transition from a first state in the conversation to a second state in the conversation

13   requires a transformation; and

14   automatically transforming the document needed in the transition, by the

15   conversation controller, if the retrieved TCDL description file has a transformational

16   element for the needed document transformation.